

**FACT SHEET FOR NPDES PERMIT WA0037265**  
**PIONEER AMERICAS, LLC**

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## INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 Revised Code of Washington (RCW) defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see [Appendix A--Public Involvement](#) of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix C--Response to Comments.

<b><u>GENERAL INFORMATION</u></b>	
Applicant	Pioneer Americas, LLC
Facility Name and Address	Pioneer Americas, LLC 605 Alexander Avenue Tacoma, WA 98421
Type of Facility	Chemical Distribution and Groundwater Remediation
SIC Code(s)	4491 Marine Cargo Handling 2819 Other Industrial Inorganic Chemicals
Discharge Location	Mouth of the Hylebos Waterway in Commencement Bay Latitude: 47° 16' 48" N      Longitude: 122° 24' 11" W.
Water Body ID Number	WA-10-0020



Figure 1. Vicinity Map.

## BACKGROUND INFORMATION

### DESCRIPTION OF THE FACILITY

#### HISTORY

The facility originally began chlor-alkali production in 1929. The facility property occupies approximately 33 acres in the industrial port area of Tacoma, Washington. The plant was owned and operated by Occidental Chemical Corporation (OxyChem) and its predecessors until Pioneer Americas, Inc. (Pioneer) purchased the operation in June 1997. At that time, Pioneer assumed ownership of the facility and responsibility for all chemical production, which included the manufacturing and distribution of chlorine, sodium hydroxide, hydrochloric acid, and calcium chloride. OxyChem maintained ownership and operation of the groundwater treatment system on-site.

OxyChem formerly operated a chlorinated solvents (trichloroethylene, perchloroethylene) production plant at the northeast end of the facility from 1947 to 1973. This operation resulted in groundwater contamination with chlorinated organic compounds. A RCRA corrective action under Washington Department of Ecology oversight is currently addressing the clean up of this site. Treated water from the groundwater treatment plant is discharged to the facility's outfall and is re-injected into the ground to create a hydraulic barrier along the waterway.

In February 2002, Pioneer idled the chlor-alkali operations and ceased producing chlorine, sodium hydroxide and hydrochloric acid. At this point in time, Pioneer continues to produce calcium chloride and serves as a terminal for sodium hydroxide and hydrochloric acid. It seems apparent that chlor-alkali

production will not likely resume in the future since all of the equipment is being dismantled and shipped off site. Calcium chloride production is anticipated to continue until the third quarter of 2005, at which point production of this product will cease. The facility is only allowed to discharge stormwater, treated groundwater, and non-contact cooling water as part of the groundwater treatment process (approximately 500 gpm of sea water) to the Hylebos Waterway of Commencement Bay. OxyChem continues to own and operate the groundwater treatment system.

#### INDUSTRIAL PROCESS

Approximately 10 people are employed on one shift with staggered start times in Terminal operation and maintenance. Operating hours are Monday through Friday from 5:00AM to 5:00PM with occasional weekend coverage for product loading or calcium chloride production. A contract guard service provides security coverage around the clock seven day per week with three shifts of one guard per shift.

Currently, Pioneer manufactures and distributes a 35 percent calcium chloride solution. This product is manufactured by feeding 36 percent hydrochloric acid at a controlled rate to a reactor charged with limestone. The limestone supply is maintained as the chemical reaction proceeds. The reactor discharges to a neutralization tank where pH and concentration adjustments are made. The resulting solution is neutralized with lime to a pH of between 8.0 and 9.0. The solution is then transferred to one of four settling tanks and allowed to settle. After settling, the "clear" solution is then pumped to either an inventory tank or shipping tank. Calcium chloride solution is shipped by truck, cargo tank or railcar. The accumulated solids are filtered through a rotary vacuum system and collected for landfill disposal. During the years 1998-2002, calcium chloride production averaged 5,833 tons with 1999 resulting in being the peak production year of 6,764 tons. Current production is approximately 500 dry standard tons per month. It is anticipated that Pioneer will discontinue calcium chloride production at the end of June 2005.

Pioneer continues to market sodium hydroxide from the Tacoma facility, though the material is not produced on-site. The 50 percent solutions of sodium hydroxide are delivered to the plant by railcar, ship, or barge and are offloaded into storage tanks. The storage area for 50% caustic soda is comprised of seven storage tanks with a total capacity of 3 million gallons. 50% caustic soda is loaded into tank trucks or rail cars for distribution. With the cycle of marine vessel arrivals and vessels loaded for shipment, standard inventory ranges from 750,000 gallons to 2.5 million gallons. In January 2005, there was a significant reduction in volume moving through the terminal and a further reduction is anticipated in June 2005.

Hydrochloric acid (HCl) is delivered to the plant by railcar and offloaded into storage tanks. The storage area for HCl includes five tanks for a total capacity of approximately 110,000 gallons. Standard inventory of HCl is approximately 50,000 gallons. The HCl is used to make calcium chloride and for pH neutralization.

Sanitary wastewater, as well as analytical laboratory wastewater, discharges to the City of Tacoma municipal sewer system.

There are four treatment systems for wastewater and stormwater at the facility. These treatment systems include:

1. The wastewater and stormwater from all areas of the plant that has been collected within containment is treated to adjust pH. This includes the calcium chloride process area, hydrochloric acid storage and caustic soda storage areas. The process wastewater is collected in the "recycle tank." After collection of a batch in the recycle tank, the water is circulated and pH is adjusted to within permit limits. On verification of pH, the tank is discharged to a sump leading to the mixing box.

2. The pH monitoring station and alkalinity adjustment/pH buffering station for combined effluent at the mixing box remains in service. However, the pH adjustment capability of the combined effluent is not in service. The pH adjustment system was designed for much larger flow characteristics than currently exists at the facility.
3. There is a groundwater treatment system (which is operated by OxyChem) that treats extracted groundwater as part of remediation efforts to remove and treat chlorinated organic chemicals prior to release into Pioneer's effluent system. Treated groundwater is both discharged to the outfall and, as part of RCRA corrective action for groundwater remediation, re-injected into wells adjacent to the Hylebos Waterway. Compliance sampling for treated groundwater is accomplished after the final carbon beds, upstream from both the outfall and injection wells.

#### *DISCHARGE OUTFALL*

The treated groundwater effluent stream combines with treated stormwater/wastewater, non-contact cooling sea water, and untreated stormwater at a "mixing box" where compliance sampling is conducted for all parameters not associated with the groundwater treatment system (compliance sampling for groundwater treatment effluent is at the groundwater treatment plant). Stormwater mixes with the treated groundwater effluent in common underground conveyances flowing to the mixing box. There is no separate stormwater system. A pipe from the mixing box leads to a diffuser located 80 feet away and approximately 26 feet below Mean Low Water Level in the Hylebos Waterway. The diffuser consists of a tee with two 24-inch nozzles, 20 feet apart pointing horizontally into the channel at right angles to the bank.

#### *PERMIT STATUS*

The previous permit for this facility was issued on March 18, 2004. The permit was subsequently modified on May 4, 2004. Due to major operational changes at the facility, this permit has been reissued to be more representative of the wastestreams from the site. As mentioned previously, the facility has curtailed its operations and is no longer operating or able to operate as a chlor-alkali plant. The facility will now be used as a chemical distribution center and will continue to remediate contaminated groundwater for organic chemicals.

#### *SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT*

The facility last received an inspection on October 18, 2004. During the history of the previous permit, the Permittee has remained in compliance based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. The only notable exceptions were due to an isolated incident where 1,1,2-trichloroethane and chloroform limitations were exceeded in January 2002 when the groundwater treatment system was phasing in the treatment of a new groundwater extraction well.

#### *WASTEWATER CHARACTERIZATION*

The proposed wastewater discharge is characterized for the following regulated parameters in Table 1, as shown below (based on data from discharge monitoring reports submitted April 2002 through August 2004). The time period is reflective of the data collected after curtailed operations have officially begun. Values shown are the average values reported during the time period.

**Table 1: Wastewater Characterization.**

Parameter	Average Monthly Value	Maximum Daily Value
<b>Outfall Mixing Box</b>		
Flow (MGD)	1.23	1.23
Copper (µg/L)	N/A	4
Nickel (µg/L)	4	4
Lead (µg/L)	N/A	4
Net TSS Discharged (lbs/day)	17.3	17.3
pH (s.u.)	Minimum 6.7	Maximum 8.5
Temperature (°C)	N/A	15.4
<b>Groundwater Treatment System Effluent</b>		
Flow (gpd)	139,746	189,721
Chloroform (µg/L)	N/A	1.2
Carbon Tetrachloride (µg/L)	N/A	ND
1,1-Dichloroethylene (µg/L)	N/A	ND
1,1,2,2-Tetrachloroethane (µg/L)	N/A	ND
Tetrachloroethylene (µg/L)	N/A	ND
1,1,2-Trichloroethane (µg/L)	N/A	ND
Trichloroethylene (µg/L)	N/A	ND
Methylene Chloride (µg/L)	N/A	1.1

#### SEPA COMPLIANCE

There are no known State Environmental Policy Act (SEPA) compliance issues at this facility at this time.

#### PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described



in 40 CFR 122.42(a), the Permittee is required to notify the Department. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

#### *TECHNOLOGY-BASED EFFLUENT LIMITATIONS*

Technology-based effluent limitations have been developed for the following pollutants in the Outfall Mixing Box: total suspended solids; and in the Groundwater Treatment System Effluent: chlorinated organics.

Total Suspended Solids: The total suspended solids (TSS) limits include an average monthly limit of 20 mg/L and a maximum monthly limit of 30 mg/L. These limits are commonly used in Washington State for properly sized stormwater retention systems that allow solids to settle prior to discharge. This technology is typically determined to be AKART for western Washington and the associated limits will be used in this permit for stormwater control. With the capacity available at the facility for wastewater/stormwater conveyance systems and tankage and basins, this is not expected to be a problem for the facility.

The facility is also producing calcium chloride through the second quarter of 2005. Regardless of when the facility plans on ceasing the production of calcium chloride (currently production is anticipated to cease at the end of June 2005), the federal effluent limitations and guidelines for calcium chloride production must be considered in this permit. 40 CFR Part 415 Subpart D specifies Best Practicable Control Technology (BPT) and Best Available Technology Economically Achievable (BAT) limitations for calcium chloride production utilizing the "brine extraction method." This facility does not utilize the brine extraction method and therefore the effluent limitations required by EPA are not considered applicable for this facility. This facility produces calcium chloride by feeding hydrochloric acid with lime.

Due to the lack of TSS effluent concentration data for the process wastewater at this time and the anticipated end date for the production of calcium chloride, the technology-based standard is assumed to be the AKART standard for stormwater in Washington State. Since production of calcium chloride is anticipated to end in June 2005, TSS will not be required to be monitored for the process wastewater. If the facility changes its plans regarding calcium chloride production, the Permittee is obligated to notify the Department at least 60 days in advance (as per general condition G4 of the permit). The Department reserves the right to require TSS monitoring of process wastewater if the production of calcium chloride will occur for a longer period of time.

Chlorinated Organics: The chlorinated organic limitations on the groundwater treatment system effluent have been determined in previous permits. These limitations are technology-based and are more stringent than the water quality criteria for the respective parameters.

#### *SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS*

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

#### NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

#### NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

#### NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

#### ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

#### CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

#### MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are

receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

#### DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Hylebos Waterway located in Inner Commencement Bay which is designated as a Class B receiving water in the vicinity of the outfall. Characteristic uses include the following:

Water supply (industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; secondary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for these uses.

#### SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

**Table 2: Applicable Surface Water Quality Criteria.**

Temperature	shall not exceed 19.0 °C due to human activities
pH	shall be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.5 units
Toxics	No toxics in toxic amounts

The Hylebos Waterway is listed on the 2002/2004 303(d) list for chlorinated pesticides, DDT, PAHs, and PCBs in fish tissue. The Pioneer Americas site is not currently known to be a significant source of these parameters. Therefore, no further consideration with meeting any Total Maximum Daily Load issues are needed in this permit.

#### CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

1. In the vertical plane, from the receiving water surface to the bottom.
2. In the horizontal plane, 200 feet from the diffuser center.

The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of a dye study conducted by OxyChem and their consultant on August 31, 1993. OxyChem was required to conduct the effluent mixing study as part of the Department Order No. DE93WQ-S190. The results of the study were submitted in a report dated October 28, 1993.

To evaluate the study results, the Department ran the PLUMES computer model for effluent mixing and dilution using the input data provided in OxyChem's report. The chronic dilution factor of 15 measured during the dye study agreed well with the model output. The measured acute dilution factor of 4 was also

consistent with the model output for flux-averaged dilution (as opposed to centerline dilution), which is the appropriate measure for marine waters. Even though these dilution factors are currently, without a doubt, larger (due to significantly lower effluent flowrates as a result of curtailed operations), a new mixing zone evaluation would be needed to re-evaluate what the values would be. However, since the Permittee is currently able to meet water quality standards with the dilution factors already established in 1993, there is no need to conduct a mixing zone study at this time and larger dilution factors will not be granted at this time. In summary, the dilution factors which have been determined previously and are authorized again for the Permittee's discharge are shown below in Table 3.

**Table 3. Summary of Dilution Factors.**

	Acute	Chronic
Aquatic Life	4	15
Human Health, Carcinogen		15
Human Health, Non-carcinogen		15

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of surface water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for the Hylebos Waterway in the vicinity of the Outfall Mixing Box corresponds with seasonal maximum waterway stratification and spring flood tide velocities. The chronic and acute dilution factors reported in the August 1993 dye study were measured under relative worst-case conditions that occur less than 5 percent of the time. Therefore, effluent limitations based on these conditions will be protective at other times.

The impacts of temperature, pH, copper were determined as discussed below, using the dilution factors at critical conditions described above.

Temperature--The impact of the discharge on the temperature of the receiving water was evaluated through a comprehensive set of temperature measurements taken during the August 1993 dye study. The study report concluded that a two-tiered temperature limit based on receiving water temperatures is protective of the water quality standards. Therefore, the temperature limits established in previous permits will be retained. When the receiving water temperature is below 18.5 °C, a limit of 32 °C is imposed. When the receiving water temperature is at, or above, 18.5 °C, a limit of 24 °C is imposed.

In the previous permit, temperature was required to be continuously monitored, and the application of continuous temperature data was used to determine to permit compliance. Previously, if the total time of excursions is less than 15 minutes in any six hour period, the permit was violated and an instantaneous maximum temperature of 34.5 °C could not be exceeded. In this permit, temperature data is required to be collected on a monthly basis instead of a continuous basis. This change was due to the fact that there is no longer any non-contact cooling water associated with the chlor-alkali operations. As a result, the 15 minute excursion rule and instantaneous temperature limit is no longer applicable in this permit. Should information result in the Department's belief that temperature may need to be monitored continuously in the future, the Department reserves the right to re-establish continuous monitoring in a regulatory order, by permit modification, or in a permit renewal.

pH--The technology based effluent limit for pH for the Calcium Chloride Production Subcategory (40 CFR part 415 Subpart D) is between 6.0 and 9.0. When a Permittee continuously measures effluent pH, excursions outside this range are permitted in accordance with 40 CFR Part 401.17 for a limited time. Federal regulations do not specify the range of pH outside of 6.0-9.0 within which such excursions are allowed.

The water quality based effluent limit for pH (WAC 173-201A) for a Class B marine waterbody is between 7.0 and 8.5 with a human-caused variation of less than 0.5 units. The point of compliance with the pH standard is the boundary of the chronic dilution zone at critical conditions. Thus, based on technology, the effluent pH must be within 6.0 to 9.0 (with excursions allowed for continuous monitoring) and based on water quality, the pH must be within 7.0 to 8.5 (with a 0.5 unit variation) at the edge of the chronic mixing zone.

OxyChem was required to conduct a receiving water buffering study to determine the range within which excursions of the technology-based limit may be allowed without violating the water quality standard at the edge of the chronic mixing zone. The results of the study were submitted to the Department in a report dated October 28, 1993, with a follow-up letter dated January 28, 1994.

Buffering capacity was determined by OxyChem with actual titration of Hylebos Waterway samples using effluent at various pH's. At a dilution factor of 15:1 (at edge of the chronic mixing zone), the limits for excursions of 3.5 and 10.5 previously set by the Department were found to be protective of the water quality standards. If the effluent is at pH of 3.5, the resultant pH at the edge of the chronic mixing zone would be approximately 7.6 (based on dilution and buffering capacity). Since the water quality standards would allow a resultant waterway pH of as low as 6.5, the 3.5 limit is more stringent than required by the water quality standards. If effluent is at a pH of 10.5, the resultant pH at the edge of the chronic mixing zone would be 9.0 (which is within the 0.5 units allowed above the pH criteria of 8.5 for Class B marine waters).

Therefore, the technology-based limits will be 6.0 to 9.0, with the total time outside this range not to exceed one percent of the operating time each month. Individual excursions outside the range of 6.0 to 9.0 and within the range of 3.5 to 10.5 shall not exceed 60 minutes per event. To be protective of water quality standards, any excursion below 3.5 or above 10.5 shall be considered a permit violation. These pH limitations were established in previous permits and are retained for use in this permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxics were determined or suspected to be present in the discharge: copper, total residual chlorine, zinc and chlorinated organics from the groundwater treatment system. The discussion below describes the concerns for the toxic pollutants that may be present in the discharge:

Total Copper: The technology-based copper limits that were imposed in the previous permit are no longer applicable due to the major changes in the facility's operations which is suspected to have a significantly lower impact on this parameter. The Department has determined that more data is needed before a reasonable potential to exceed copper criteria can be made. Once more data is collected, the Department will make a determination on whether or not a limit is needed.

Total Zinc: Due to the lack of data, a reasonable potential to exceed zinc water quality standards cannot be conducted at this time. As a result, this permit will require the collection of zinc data which will be

used for evaluation in the future. The Department reserves the right to place zinc limitations, in the future, should the data indicate that zinc criteria cannot be met.

*Chlorinated Organics:* Water quality-based limitations for the various chlorinated organics in the groundwater treatment system effluent have not been included in previous permits because the technology-based limitations have been/are more stringent. The previous technology-based limitations have been retained and are used in this permit except for 1,1,2,2-Tetrachloroethane whose previous technology-based limit is further restricted by human health criteria (please see discussion under the section Human Health, below). It should be noted that, in the future, the Department may elect to revise the technology-based limits to make them more stringent so as to be more representative of the concentrations of parameters being discharged in the effluent during the past few years.

The Permittee may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

Metals criteria may also be adjusted using the water effects ratio approach established by USEPA, as generally guided by the procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or replaced.

#### WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC<sub>50</sub>, EC<sub>50</sub>, IC<sub>25</sub>, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Department Publications Distribution Center 360-407-7472 for a copy. The Department recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

As was shown in Tables 10 and 11 of the previous permit's Fact Sheet, the WET tests during effluent characterization indicated that no reasonable potential exists to cause receiving water acute or chronic toxicity, and therefore, as a result, the Permittee was not given an acute WET limit and will only be required to retest the effluent prior to application renewal for this permit in order to demonstrate that acute toxicity has not increased in the effluent. This requirement from the previous permit has been

retained based on the facility's potential to discharge volatile organic compounds. Due to the changes as a result of the facility's curtailed operations (no longer operating as a chlor-alkali plant), it is anticipated that toxicity would decrease.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC173-205-020, "whole effluent toxicity performance standard." The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

#### HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the effluent is likely to have chemicals of concern for human health. The discharger's high priority status is based on Pioneer Americas, LLC's Tacoma, WA facility's status as a major discharger and knowledge of Pioneer America's data and process information indicating regulated chemicals occur in the discharge.

A determination of the discharge's potential to cause an exceedance of the water quality standards was conducted as required by 40 CFR 122.44(d). The reasonable potential determination was evaluated with procedures given in the Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001) and the Department's Permit Writer's Manual (Ecology Publication 92-109, July, 1994). The determination indicated that the discharge has no reasonable potential to cause a violation of water quality standards, thus an effluent limit is not warranted.

For chlorinated organics in the groundwater treatment system effluent, all analytical results reported to date have been very low, close to the detection limit (with the exception of an isolated incident where 1,1,2-trichloroethane and chloroform limitations were exceeded in January 2002 when the groundwater treatment system was phasing in the treatment of a new groundwater extraction well). Technology-based effluent limitations were developed and placed in previous permits for the groundwater treatment system and are retained in this permit. Human health criteria apply at the edge of the chronic mixing zone boundary. A chronic mixing zone dilution factor of 15 has been granted to the Permittee in previous permits and is still granted in this permit. Table 4 (below) shows calculated values of the technology-based limitations divided by the chronic dilution factor to show what the maximum concentration of each parameter would be at the edge of the chronic mixing zone boundary. The human health criteria is also provided in Table 4 for a comparison. A new internal dilution factor of 6.5 was utilized which reflects the ratio of the maximum daily flow in the combined effluent (1.23 MGD) with the maximum daily flow of the groundwater treatment system (189,721 GPD) (please refer to Table 1 of the fact sheet).

**Table 4. Human Health Criteria Comparison.**

Parameter	Technology-Based Limitations	Maximum Allowable Concentration at the Edge of the Chronic Mixing Zone	Human Health Criteria (Marine)
Chloroform (µg/L)	75	0.77	470
Carbon Tetrachloride (µg/L)	10	0.10	4.4

1,1-Dichloroethylene (µg/L)	5	0.05	3.2
1,1,2,2-Tetrachloroethane (µg/L)	180	1.85	11
Tetrachloroethylene (µg/L)	50	0.51	8.85
1,1,2-Trichloroethane (µg/L)	5	0.05	42
Trichloroethylene (µg/L)	440	4.51	81
Methylene Chloride (µg/L)	185	1.90	1600

#### SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has been unable to determine at this time the potential for this discharge to cause a violation of sediment quality standards. If the Department determines in the future that there is a potential for violation of the Sediment Quality Standards, an order will be issued to require the Permittee to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxics in the sediments.

#### GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

Occidental Chemical Corporation owns and operates the groundwater treatment system. Treated groundwater is injected into wells located adjacent to the Hylebos Waterway as part of its RCRA corrective action for groundwater remediation. Treated groundwater must meet the same limitations as those set for the treatment facility effluent that is discharged to the Waterway. Sampling and testing frequency will be the same for both groundwater re-injection and discharge to the waterway.

#### COMPARISON OF EFFLUENT LIMITS WITH THE PERMIT ISSUED ON MARCH 18, 2004 AS MODIFIED ON MAY 4, 2004

Table 5 (below) provides a comparison of effluent limits contained in the permit issued on March 18, 2004, as modified on May 4, 2004. Several changes were made to the limitations associated with the Outfall Mixing Box. The changes were made to the following parameters: flow, total copper, total nickel, total zinc, total suspended solids, total residual chlorine, oil and grease (concentrations), and oil and grease (visual). Please refer to the section on technology-based effluent limits for a discussion on why the changes were made. Only one change was made to the groundwater treatment system effluent limitations. The maximum daily limit of 1,1,2,2-Tetrachloroethane was reduced to 165 µg/L in order to comply with the human health criteria.

**Table 5. Comparison of Effluent Limits.**

Existing Limits	Proposed Limits
<b>Outfall Mixing Box (002 in old permit, 001 in new permit)</b>	
Flow – maximum daily limit of 24,500,000 gpd	Flow – no limits proposed
Temperature – maximum daily limit of 32.0 °C, 24.0 °C	Temperature – same limits proposed
Total Copper – maximum daily limit of 7 µg/L	Total Copper – no limits proposed



Existing Limits	Proposed Limits
Total Nickel – average monthly limit of 9 µg/L and maximum daily limit of 13 µg/L	Total Nickel – no limits proposed
Total Suspended Solids – average monthly limit of 365 lbs/day and maximum daily limit of 720 lbs/day	Total Suspended Solids – average monthly limit of 20 mg/L and maximum daily limit of 30 mg/L
Total Residual Chlorine – average monthly limit of 12 µg/L and maximum daily limit of 35µg/L	Total Residual Chlorine – no limits proposed
pH – 6.0 s.u. to 9.0 s.u.	pH – same limits proposed
Oil and Grease (visual) – No existing limits in place	Oil and Grease (visual) – no visual sheen
<b>Groundwater Treatment System Effluent (CSP 002 in new permit)</b>	
Chloroform – maximum daily limit of 75 µg/L	Chloroform – same limits proposed
Carbon Tetrachloride – maximum daily limit of 10 µg/L	Carbon Tetrachloride – same limits proposed
1,1-Dichloroethylene – maximum daily limit of 5 µg/L	1,1-Dichloroethylene – same limits proposed
1,1,2,2-Tetrachloroethane – maximum daily limit of 180 µg/L	1,1,2,2-Tetrachloroethane – same limits proposed
Tetrachloroethylene – maximum daily limit of 50 µg/L	Tetrachloroethylene – same limits proposed
1,1,2-Trichloroethane – maximum daily limit of 5 µg/L	1,1,2-Trichloroethane – same limits proposed
Trichloroethylene – maximum daily limit of 440 µg/L	Trichloroethylene – same limits proposed
Methylene Chloride – maximum daily limit of 185 µg/L	Methylene Chloride – same limits proposed

### MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under Condition S1. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

The monitoring frequency for temperature has been reduced from continuously to monthly since there is no longer non-contact cooling water associated with the chlor-alkali plant; however there is still a small amount of water being used for cooling as part of the groundwater treatment system.

### LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

### OTHER PERMIT CONDITIONS

*REPORTING AND RECORDKEEPING*

The conditions of S2 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

*SPILL PLAN*

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

*SOLID WASTE PLAN*

The Department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate of solid waste.

This proposed permit requires, under the authority of RCW 90.48.080, that the Permittee update the solid waste plan designed to prevent solid waste from causing pollution of the waters of the state. The plan must be submitted to the local permitting agency for approval, if necessary, and to the Department.

*OUTFALL EVALUATION*

Proposed permit Condition S8 requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to evaluate the extent of sediment accumulations in the vicinity of the outfall.

*TREATMENT SYSTEM OPERATING PLAN*

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system [40 CFR 122.41(e)] and WAC 173-220-150 (1)(g). An operation and maintenance manual was submitted as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). It has been determined that the implementation of the procedures in the Treatment System Operating Plan is a reasonable measure to ensure compliance with the terms and limitations in the permit.

*GENERAL CONDITIONS*

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

**PERMIT ISSUANCE PROCEDURES**

*PERMIT MODIFICATIONS*

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for

Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

#### RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this proposed permit expire on June 30, 2009. This is for a period of less than five years but conforms to the Department's goal of managing permits in each water quality management area on a five-year cycle.

#### REFERENCES FOR TEXT AND APPENDICES

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Environmental Protection Agency. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C. 1983.

Occidental Chemical Corporation. Chemical Analysis of Intake, Internal Streams, and Effluent – Discharge Reduction and Elimination Study. July 1995.

Occidental Chemical Corporation. Stormwater Runoff Study. June 9, 1995.

Parametrix, Inc. Toxicity Evaluation of an Effluent Sample to *Menidia beryllina* – Prepared for Occidental Chemical Corporation. July 1995.

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Parametrix, Inc. Toxicity Evaluation of an Effluent Sample to *Menidia beryllina*, *Mysidopsis bahia* and *Cyprinodon variegatus* – Prepared for Occidental Chemical Corporation. December 1994.

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- Parker, Messana & Associates, Inc. Outfall pH Control for Pioneer Chlor Alkali Company – Tacoma, WA. October 15, 1997.
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- Wright, R.M., and A.J. McDonnell. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.). 1979.

## APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on July 13, 2003, and July 20, 2003, in the *Tacoma News Tribune* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on \_\_\_\_\_, in the *Tacoma News Tribune* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Industrial Permit Coordinator  
Department of Ecology  
Southwest Regional Office  
P.O. Box 47775  
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407- 6289 or by writing to the address listed above.

This permit and fact sheet were written by John Diamant, P.E.

## APPENDIX B--GLOSSARY

**Acute Toxicity** -- The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

**AKART** -- An acronym for "all known, available, and reasonable methods of treatment".

**Ambient Water Quality** -- The existing environmental condition of the water in a receiving water body.

**Ammonia** -- Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Average Monthly Discharge Limitation** -- The average of the measured values obtained over a calendar month's time.

**Best Management Practices (BMPs)** -- Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**BOD<sub>5</sub>** -- Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

**Bypass** -- The intentional diversion of waste streams from any portion of a treatment facility.

**Chlorine** -- Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

**Chronic Toxicity** -- The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

**Clean Water Act (CWA)** -- The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

**Compliance Inspection - Without Sampling** -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

**Compliance Inspection - With Sampling** -- A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

**Composite Sample** -- A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

**Construction Activity** -- Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

**Continuous Monitoring** -- Uninterrupted, unless otherwise noted in the permit.

**Critical Condition** -- The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

**Dilution Factor** -- A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

**Engineering Report** -- A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Fecal Coliform Bacteria** -- Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

**Grab Sample** -- A single sample or measurement taken at a specific time or over as short period of time as is feasible.

**Industrial Wastewater** -- Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

**Major Facility** -- A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

**Maximum Daily Discharge Limitation** -- The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Method Detection Level (MDL)** -- The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

**Minor Facility** -- A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

**Mixing Zone** -- An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

**National Pollutant Discharge Elimination System (NPDES)** -- The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

**pH** -- The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

**Quantitation Level (QL)** -- A calculated value five times the MDL (method detection level).

**Responsible Corporate Officer** -- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

**Technology-based Effluent Limit** -- A permit limit that is based on the ability of a treatment method to reduce the pollutant.

**Total Suspended Solids (TSS)** -- Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**State Waters** -- Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater** -- That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

**Upset** -- An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

**Water Quality-based Effluent Limit** -- A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.



**APPENDIX C--RESPONSE TO COMMENTS**